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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/038,230	03/11/1998	TSUGUO KOYANAGI	1217-980347	8053

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EXAMINER
METZMAIER, DANIEL S

ART UNIT	PAPER NUMBER
1712	33

DATE MAILED: 01/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/038,230	Applicant(s) KOYANAGI ET AL.	
	Examiner Daniel S. Metzmaier	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1 and 5 are pending. The request for a one month extension of time filed November 18, 2002 has been entered as Paper No. 31. The Remarks filed November 18, 2002 have been entered as Paper No. 32.

Claim interpretation

1. Applicant's claim is directed to inorganic oxide sols comprising a modified composite oxide particulates. Said sols have a dielectric constant of 10 to 85, a particle size range of 11 to 30 nanometers, and a specific classes of organosilane compounds. Said compounds are further limited to exhibiting a molecular polarizability of 2×10^{-40} to 850×10^{-40} C^2 m^2 J^{-1}. Said sols have been limited to a specific silica to other inorganic oxide ratio of 3 to 500. Said sols have been limited to being stable in the presence of species selected from the group consisting of ionic components, salts, and surfactants.

The term composite oxide particulate is not specifically defined in the instant specification and takes the plain meaning in the art, which includes an oxide particulate comprising two or more metal oxides in the oxide particulate.

It is noted, the claims do not require the species selected from the group consisting of ionic components, salts, and surfactants; but that they are stable in the presence thereof. The amount of the species selected from the group consisting of ionic components, salts, and surfactants have not been defined in the claims. A sol having a pH other than neutral is considered to have ionic components. The degree of stability has not been defined in the claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> **A person shall be entitled to a patent unless –**
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Minnesota Mining and Manufacturing Company (3M), WO 97/00995. 3M (pages 25 and 26) disclose coupling agent treated silica sols and denote the sol P-4 as surface treated NALCOAG 1056, which is colloidal silica core with an Al_2O_3 shell (~4% Al_2O_3) suspension having a mean particle size of 20 nm and 30 % solids content in water having a pH of 4.2. Said NALCOAG 1056 has been treated with mercaptopropyltrimethoxysilane. The sols are characterized as homogeneous and the claimed properties of the sol compositions would have been expected to have been inherent to the compositions since the compositions otherwise consist of the same components. A composition and all of its properties are generally inseparable. ***In re Papsech***, 315 F2d. 381, 137 USPQ 43, (CCPA 1963).

4. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Bunger et al., US 3,689,300. Bunger et al (example 1) discloses methacryloxypropyltrimethoxysilane treated silica sols, which are colloidal silica (26% SiO_2) modified with an Al_2O_3 shell (~4% Al_2O_3) suspension having a mean particle size of 16 nm and 30 % solids content in water having a pH of 4.7. The sols are characterized as homogeneous and the claimed properties of the sol compositions

would have been expected to have been inherent to the compositions since the compositions otherwise consist of the same components. A composition and all of its properties are generally inseparable. ***In re Papsech***, *supra*.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as obvious over Enomoto et al., US 5,935,700, in view of Yoneda et al, US 5,316,714. Enomoto et al (abstract, column 3, et seq; examples, and claims) disclose composite particles of silica and at least one other inorganic oxide other than silica. Suitable particles are taught (columns 3 to 4, lines 62 to 10) to range in size from 10 nm to 2 microns. Said range includes applicants claimed range of 10 to 30 nm. Said range is defined only by applicants'

examples and applicants teach (page 6, lines 20-23) the size of the composite particulates is not particularly limited as long as the sol is stable.

Enomoto et al (column 7, lines 26-47) teaches the composite oxides may be employed as an organosol in alcohols, glycols and ketones which read on the required dielectric constant claimed. Enomoto et al further teaches the particles may be surface modified by silane coupling agents. Enomoto et al (examples; particularly example 6) teaches the silica to other oxide ratio within the range of 3 to 500.

Enomoto et al differs from the claims in the particular silane coupling agent treating said composition.

Yoneda et al is cited on the Enomoto et al reference. Yoneda et al teaches glycol dispersions for imparting slipperiness to polyester films. Yoneda et al (column 7, lines 15 et seq) teaches coupling agents for treating the particulate sols including those exhibiting a molecular polarizability claimed. Please contrast the Yoneda et al species with those disclosed at page 22, table 1 of the specification.

These references are combinable because they teach providing slipperiness to polymer films. Said references are directed to related art as evidenced by the citation of Yoneda et al on the Enomoto et al patent. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the coupling agents taught in the Yoneda et al reference as obvious coupling agents conventional in the art and broadly taught in the Enomoto et al reference. Furthermore, the skilled artisan would have been motivated to employ the aminosilane as an exemplified (table 2c) species for the advantage of providing slipperiness.

Applicants' comparative data does not show criticality for the use different silanes having the molecular polarizability in glycol suspensions. Furthermore, applicants state the particle size is critical to the extent a stable sol is formed.

One of ordinary skilled in the art at the time of applicants invention to employ would have reasonably expected the formation of glycol sols surface modified with the silanes of Yoneda et al would have produced stable sols upon reading the Enomoto et al reference in view of the Yoneda et al reference.

Response to Arguments

8. Applicant's arguments filed November 18, 2002 have been fully considered but they are not persuasive.

9. Applicants (page 2) assert the WO '995 reference teaches coated particles rather than composite particles. This is not found persuasive since composite is not specifically defined in the instant specification and therefore take the plain meaining in the art. A composite is a mixture or mechanical combination of two o more materials. The claims do not further define the structure of the composite and read on silica having a alumina coated surface. Applicants' diagram on page 3 is but one embodiment directed to applicants' preferred embodiment.

Applicants' arguments (pages 3 and 4) regarding the process and the solvent displacement are not found probative for the claimed compositions. The displacement of water is not required by the instant claims since the dispersion medium has a dielectric constant of 10 to 85 and water as noted by applicants in table 2 of the instant

specification at page 24 has a dielectric constant of 77, which is within the claimed range.

10. Applicants (pages 4 and 5) assert the Bunger et al reference teaches coated particles rather than composite particles. This has not been deemed persuasive for the same reasons given above regarding the WO '995 reference.

11. Applicants (page 5) assert the Yoneda et al reference discloses numerous coupling agents including methyltrimethoxysilane. This has not been deemed persuasive because at least about half of the coupling agents would have the claimed molecular polarizability and three of the four exemplified species in table 2-c would have the claimed molecular polarizability including the gamma-aminosilane compound exemplified in the Yoneda et al reference. One having ordinary skill in the art would have been motivated to employ those materials which are preferred as coupling agents as the best performing materials to achieve the advantages of the prior art. Furthermore, applicants have not shown the coupling agents having the claimed polarizability and those disclosed and exemplified in the Yoneda et al reference to distinguish the compositions of Yoneda et al from the claims.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (703) 308-0451. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on (703) 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Daniel S. Metzmaier
Primary Examiner
Art Unit 1712

DSM
January 24, 2003